

### **REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks. The foregoing amendments are made to clarify the language of the claims, and are fully supported by the original specification and claims. No new matter is added.

#### ***Information Disclosure Statement (IDS)***

As previously addressed in our Amendment and Response of May 27, 2007, Applicant notes that the List of Potentially Related Pending Applications submitted as part of the Information Disclosure Statement filed on March 30, 2005, has not been initialed and returned by the Examiner.

Applicant respectfully submits that the List of Potentially Related Pending Application included with the Information Disclosure Statement of March 30, 2005, fully complies with 37 C.F.R. §§ 1.97, 1.98, and therefore respectfully requests consideration of all of the documents cited therein, and return to Applicant of a copy of the Examiner-initialed List of Potentially Related Pending Applications.

#### ***Amendments***

Claims 1 and 8 are amended. Claims 2-7 are canceled. Claims 1, and 8-10 are under examination.

#### ***Rejection under 35 U.S.C. § 112, second paragraph***

In the Office Action, beginning at page 2, Claim 8 was rejected under 35 U.S.C. § 112, second paragraph, as reciting subject matter that allegedly is indefinite. Applicant respectfully requests reconsideration of this rejection.

Claim 8 has been amended as suggested by the Examiner.

For at least the foregoing reasons, Applicant respectfully submits that Claim 8 fully complies with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

***Rejection under 35 U.S.C. § 103(a)***

In the Office Action, beginning at page 2, Claims 1 and 8-10 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly are obvious, and therefore allegedly unpatentable, over the disclosure of Lloyd et al. in view of the disclosures of Stainthorpe et al. and West et al. Applicant respectfully requests reconsideration of this rejection.

Claim 1 has been amended to clearly show that the *Escherichia coli* which is contacted with the alkane is the same *Escherichia coli* as defined in Claim 1 (A). As stated previously, Lloyd et al. disclose a method for producing methanol from methane by using *M. trichosporium*. However, the claimed invention uses *E. coli*. Furthermore, although the optimal temperature for growth of *E. coli* is generally around 37°C, as described in paragraph [0072] of the specification, the method of the present invention requires culturing *E. coli* at a much lower temperature, that is, 20 to 30°C, in order to produce alcohol. Lloyd et al. clearly does not disclose or suggest culturing *E. coli* at 20 to 30°C so that alcohol can be produced. Therefore, this is not a mere choosing of culture conditions, but actually is a surprising effect of an unusual culture condition, given the optimum growth temperature for *E. coli*. Nothing in the prior art would lead one of ordinary skill in the art to choose these culture conditions, and in fact, teaches away from such. Therefore, the surprising effect is not taught or suggested by the prior art.

The secondary references do not make up for the deficiencies of Lloyd et al., and fail to provide a reason to combine the teachings of the three references to arrive at the claimed invention. In particular, the three components of methane oxygenase, that is, methane hydroxylase, B component, and reductase, are all required to be used in the method of the claimed invention. None of the cited documents disclose or suggest, either alone or in combination, that all three of these genes could be expressed in a microorganism, such as *E. coli*, that cannot originally assimilate an alkane and alcohol. The inventors of the present invention succeeded in simultaneous expressions of all the genes for the first time, which imparted an ability to produce an alcohol from an alkane to the microorganism. The claimed invention has made it possible for the first time to impart an ability to produce alcohol from an alkane in the claimed microorganism. Therefore, the present invention is not obvious over these references.

Applicants continue to strenuously disagree with the assessment of the claimed process as a 'product-by-process' claim. Claim 1 has been amended to remove any implication of a product by process, in that the expression of the recited genes is now recited as a characteristic of the cell. The process of how the cell gained that characteristic, i.e. by transformation, is no longer present in the claim, and hence, the cell is not the claimed product of a claimed process. All characteristics of the cell must be considered as limitations of the claim for the purposes of evaluating the prior art.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1 and 8-10, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

***Conclusion***

For at least the foregoing reasons, Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of the present patent application is therefore respectfully solicited.

If Examiners Marx believes that a telephone conference with the undersigned would expedite passage of the present patent application to issue, she is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

By: 

Shelly Guest Cermak  
Registration No. 39,571

**U.S. P.T.O. Customer No. 38108**  
Cermak Kenealy & Vaidya, LLP  
515 E. Braddock Road, Suite B  
Alexandria, VA 22314  
703.778.6608

Date: October 3, 2007